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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/954,636	09/14/2001	James J. Croft III	T8534.CIP	7553

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Attn: Vaughn W. North
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EXAMINER

HARVEY, DIONNE

ART UNIT	PAPER NUMBER
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2646

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/954,636

Applicant(s)

CROFT, JAMES J.

Examiner

Dionne N. Harvey

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 5-7, 15-19, 22, 24 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-14, 21, 23 and 25-34 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

In Paper No. 7, the applicant elected, without traverse, the species of Group I, illustrated in figures 5-7. Claims 5,6,7,15-19,22,24 and 34 are not drawn to the elected species. Therefore they have not been examined further. Non-elected claims should be withdrawn.

Claim Objections

Claim 20 is objected to under 37 CFR 1.75(c) as being in improper form because a claim cannot depend on multiple claims. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-14 recite the limitation "said at least one additional passive acoustic radiator" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claims 25-32 recite the limitation "said at least one additional passive acoustic radiator" in line 4. There is insufficient antecedent basis for this limitation in the claim.

~~Note: claims 26-32 encompass the limitations of claim 25 and therefore lack~~
proper antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 8-11,21,23,33 and 35** are rejected under 35 U.S.C. 102(e) as being anticipated by **Coffin U.S. 6,431,309**.

Regarding claims 8 and 10,

in **figure 6**, Coffin teaches a loudspeaker system comprising: at least one electro-acoustical transducer **2** for converting an input electrical signal into corresponding acoustic output;

an enclosure divided into (n) sub-chambers **75,78,77** by (n-1) dividing walls **73,72** with n=3;

at least a first dividing wall **72** supporting and co-acting with said at least one electro-acoustical transducer **2** to bound said first **77** and second **78** sub-chambers;

at least one primary passive acoustic radiator **76C** designed to realize a predetermined acoustic mass and intercoupling said first **77** and second **78** sub-chambers;

~~though Coffin teaches that cones 2 and 4 move in unison, in column 2, lines 58-~~

63 Coffin teaches that cone 4 is pneumatically coupled, thereby reading on “at one secondary passive acoustic radiator” specifically designed to realize a predetermined acoustic mass and coupling each sub-chamber other than said first chamber to another sub-chamber;

at least one tertiary passive acoustic radiator 76A specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said sub-chambers 75, other than the first sub-chamber 77, to a region outside said enclosure;

each of said sub-chambers having the characterization of acoustic compliance;

in column 4, line 66 - column 5, line 5, Coffin teaches that output from the front side of cone 2 is coupled to chamber 78. It is also clear from the figure that the front surface of cone 2 is coupled to sub-chamber 77. Furthermore, it is understood in the art that some degree of the output from the front surface of cone 2 is delivered to chamber 75 through vent 76C and aperture 14, thus reading on “and said passive acoustic radiator masses interacting with sub-chamber compliances to form a total of (n) Helmholtz-reflex acoustic filters of which the output of the transducer and at least one primary passive acoustic radiator must pass through before exiting the enclosure.”

Regarding claims 9 and 11,

Coffin teaches that passive acoustic radiators have the characteristic of acoustic mass and are selected from the group consisting of vents, ports, and suspended passive diaphragms.

Regarding claims 21 and 23,

~~As taught by the structure of the apparatus of the speaker enclosure, Coffin~~
teaches a method for configuring a low-range speaker system comprising the steps of:

- a) configuring a low range speaker system to include multiple low pass acoustic filter structures **75,78,77** to achieve at least a third order acoustic low pass character;
- b) configuring a transducer **2** with a vibratable diaphragm to be filtered by said low pass acoustic filters; and
- c) operating a low frequency passive acoustic radiator **76C** in parallel with said transducer **2** such that said passive acoustic radiator **76C** is filtered by said low pass acoustic filter structures **78,77**.

Regarding claim 33,

in **figure 6**, Coffin teaches a method for configuring a low-range speaker system comprising the steps of:

- a) configuring a low range speaker system to include multiple low pass acoustic filter structures **75,78,77** to achieve at least a third order acoustic low pass character;

in **column 4, line 66 - column 5, line 5**, Coffin teaches that output from the front side of cone **2** is coupled to chambers **78 and 77**. Furthermore, it is understood to one of ordinary skill in the art that some degree of the output from the front surface of cone **2** is delivered to chamber **75** through aperture **14**, thus reading on "configuring a transducer with a vibratable diaphragm for which all output of one side said vibratable diaphragm that is delivered to the region outside said low range speaker system is filtered by all of said low pass acoustic filter structures."

Regarding claim 35,

~~Coffin teaches configuring a low-frequency passive acoustic radiator 76C~~
operating in parallel with said transducer 2 such that said passive acoustic radiator 76C
is filtered by said low pass acoustic filter structures 78,77.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over
Coffin U.S. 6,431,309.

Regarding claims 1,

in **figure 6**, Coffin teaches a loudspeaker system comprising: at least one
electro-acoustical transducer 2 for converting an input electrical signal into
corresponding acoustic output; an enclosure divided into at least first 77, second 78 and
third 75 sub-chambers by at least first 72 and second 73 dividing wall; said first dividing
wall 72 supporting and co-acting with said at least one electro-acoustical transducer 2 to
bound said first 77 and said second 78 sub-chambers; though Coffin teaches that cones
2 and 4 move in unison, in **column 2, lines 58-63** Coffin teaches cone 4 is
pneumatically coupled, thereby reading on "at least one passive acoustic radiator"
specifically designed to realize a predetermined acoustic mass and intercoupling said
second 78 and third 75 sub-chambers; at least a second passive acoustic radiator 76A

specifically designed to realize a predetermined acoustic mass and intercoupling at least one of said second **78** and third **75** sub-chambers with the region outside said enclosure; at least a third passive acoustic radiator **76C** specifically designed to realize a predetermined acoustic mass and intercoupling said first **77** and second **78** sub-chambers; each of said sub-chambers having the characterization of acoustic compliance; and said first **4** and second **76A** passive acoustic radiator masses interacting with second **78** and third **75** sub-chamber compliances to form two Helmholtz-reflex tunings at two spaced frequencies in the pass-band of said loudspeaker.

Although the **figure 6** of Coffin appears to illustrate that the third passive acoustic radiator **76C** forms a third Helmholtz-reflex tuning at a frequency lower than that of said first and second passive acoustic radiators (*due to the added acoustic mass of 76B*), Coffin does not specifically state that the third passive acoustic radiator has a frequency lower than that of said first and second passive acoustic radiators.

However, the Examiner takes Official Notice, that varying the acoustic mass of passive acoustic radiators is well known in the art, and it would have been obvious to dimension the third passive acoustic radiator such that it has a frequency lower than that of said first and second passive acoustic radiators, for the purpose of tuning the output of the loudspeaker system.

Regarding claim 2,

Coffin teaches that said passive acoustic radiators have the characteristic of acoustic mass and are selected from the group consisting of vents, ports, and suspended passive diaphragms.

Regarding claim 3,

Coffin teaches that the second passive acoustic radiator **76A** intercouples the third sub-chamber **75** with the region outside the enclosure.

Regarding claim 4,

Coffin teaches that the second passive acoustic radiator **76A** intercouples the second sub-chamber **78** with the region outside the enclosure via pneumatic cone **4**.

Response to Arguments

Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

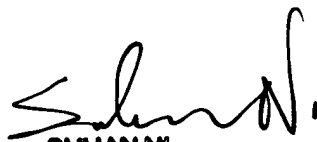
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N Harvey whose telephone number is 703-305-1111. The examiner can normally be reached on 9-6:30 M-F and alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dionne Harvey


SUHAN NI
PRIMARY EXAMINER